

CLAIMS

1. A ferrite magnet powder represented by the composition formula $A\text{Fe}^{2+}_{a(1-x)}\text{M}_{ax}\text{Fe}^{3+}_b\text{O}_{27}$, wherein A represents at least one element selected from the group consisting of Sr, Ba, and Pb; and M represents at least one element selected from the group consisting of Zn, Co, Mn, and Ni,

characterized in that $0.05 \leq x \leq 0.80$,

$1.5 \leq a \leq 2.2$, and

$12 \leq b \leq 17$.

2. The ferrite magnet powder according to claim 1, characterized in that a crystal phase identified by X-ray diffraction comprises a W phase as a main phase.

3. The ferrite magnet powder according to claim 1, characterized in that $0.1 \leq x \leq 0.70$ in said composition formula.

4. The ferrite magnet powder according to claim 1, characterized in that $1.7 \leq a \leq 2.2$ in said composition formula.

5. The ferrite magnet powder according to claim 1, characterized in that $14 \leq b \leq 17$ in said composition formula.

6. The ferrite magnet powder according to claim 1, characterized in that said M is Zn.

7. The ferrite magnet powder according to claim 1, characterized in that said ferrite magnet powder has a saturation magnetization of 5.0 kG or more.

8. The ferrite magnet powder according to claim 1, characterized in that said ferrite magnet powder has a saturation magnetization of 5.1 kG or more.

9. A sintered magnet represented by the composition formula $AFe^{2+}_{a(1-x)}M_{ax}Fe^{3+}_bO_{27}$, wherein A represents at least one element selected from the group consisting of Sr, Ba, and Pb; and M represents at least one element selected from the group consisting of Zn, Co, Mn, and Ni,

characterized in that $0.05 \leq x \leq 0.80$,

$1.5 \leq a \leq 2.2$, and

$12 \leq b \leq 17$.

10. A sintered magnet comprising, at a molar ratio of 50% or more, a W-type hexagonal ferrite comprising an element A, (wherein A represents at least one element selected from the group consisting of Sr, Ba, and Pb), Fe^{2+} , and Fe^{3+} , characterized in that the Fe^{2+} site of said W-type hexagonal ferrite is partially substituted with an element M, wherein M represents at least one element selected from the group consisting of Zn, Co, Mn, and Ni.

11. The sintered magnet according to claim 9 or 10, characterized in that said sintered magnet has a saturation magnetization of 5.1 kG or more.

12. The sintered magnet according to claim 9 or 10, characterized in that said sintered magnet has a saturation magnetization of 5.0 kG or more and a squareness of 80% or more.

13. The sintered magnet according to claim 9 or 10, characterized in that said sintered magnet has a saturation magnetization of 5.0 kG or more and a residual magnetic flux density of 4.2 kG or more.

14. The sintered magnet according to claim 9 or 10, characterized in that said element M is Zn.

15. The sintered magnet according to claim 9 or 10, characterized in that said element A is Sr.

16. The sintered magnet according to claim 9 or 10, characterized in that said element A is Sr and Ba.

17. A bonded magnet comprising:

a ferrite magnet powder represented by the composition formula $A\text{Fe}^{2+}_{a(1-x)}\text{M}_{ax}\text{Fe}^{3+}_b\text{O}_{27}$, wherein A represents at least one element selected from the group consisting of Sr, Ba, and Pb;

and M represents at least one element selected from the group consisting of Zn, Co, Mn, and Ni, and wherein $0.05 \leq x \leq 0.80$, $1.5 \leq a \leq 2.2$, and $12 \leq b \leq 17$; and

a resin phase that disperses and retains said ferrite magnet powder.

18. A magnetic recording medium comprising a substrate and a magnetic layer formed on said substrate,

characterized in that said magnetic layer has a ferrite structure represented by the composition formula

$A\text{Fe}^{2+}_{a(1-x)}\text{M}_{ax}\text{Fe}^{3+}_b\text{O}_{27}$, wherein A represents at least one element selected from the group consisting of Sr, Ba, and Pb; and M represents at least one element selected from the group consisting of Zn, Co, Mn, and Ni, and

wherein $0.05 \leq x \leq 0.80$, $1.5 \leq a \leq 2.2$, and $12 \leq b \leq 17$.

19. The magnetic recording medium according to claim 18, characterized in that said magnetic layer has a saturation magnetization of 5.2 kG or more.

20. The magnetic recording medium according to claim 18, characterized in that said M is Zn and said magnetic layer has a saturation magnetization of 5.2 kG or more and a residual magnetic flux density of 4.5 kG or more.